E. coli could not recognize the pili of any of the non-O1 *V. cholerae* suggests that there is no immunologic cross-reactivity between the pili of enterotoxigenic *E. coli* and those of *V. cholerae* non-O1.

This report clearly demonstrated the production of pili that were immunologically different from the pili (CFAs) of enterotoxigenic *E. coli* by some non-O1 strains of *V. cholerae*. Because pili of enterotoxigenic *E. coli* serve as colonization factors, by analogy we postulate that the pili of non-O1 *V. cholerae* may also play a role as colonization factors. This interesting possibility requires further study. It is also important to analyze the relationship between the pili of *V. cholerae* O1 reported by others [5, 9, 10] and those of *V. cholerae* non-O1 reported here.

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Immunoperoxidase Slide Test For Detecting Antibodies to *Borrelia burgdorferi*

COLLEAGUES—*Borrelia burgdorferi* has recently been established as the causative agent of Lyme disease [1, 2]. Determining circulating antibodies to *B. burgdorferi* followed by demonstrating the agent by culture or by histology has given evidence for the etiology of some dermatoses that were clinically defined long ago (erythema chronicum migrans, lymphadenosis benigna cutis, acrodermatitis chronica atrophicans). A causative role for *B. burgdorferi* is discussed for other disease entities [3]. So far, circulating antibodies to *B. burgdorferi* have been determined by immunofluorescence tests (IFT) and ELISA. Both methods require special technical equipment (fluorescence microscope, photometer) and experience in evaluating the results.

We developed an immunoperoxidase slide test (IPT) that is easily performed and read with a simple light microscope. The binding of specific IgG antibodies to smears of *B. burgdorferi* (strain B31) fixed on slides by acetone is visualized by subsequent incubation with peroxidase-conjugated antibody to human IgG followed by incubation with a chromogenic substrate. This method was com-

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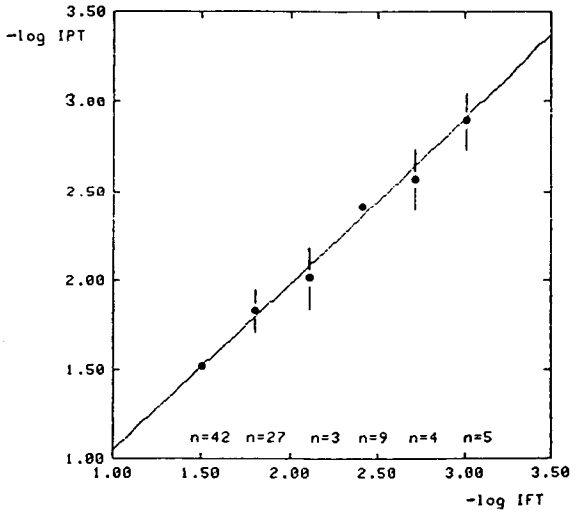

Figure 1. Correlation of titers of IgG antibody to *B. burgdorferi* in IPT and IFT. ●, − log of the mean titer for the no. of determinations indicated on figure; *Bars* represent ± 2 SD (n = 90, r = .9805, $P < .001$; 1.51 = −log 1:32, 1.81 = −log 1:64, 2.11 = −log 1:128, 2.41 = −log 1:256, 2.71 = −log 1:512, 3.01 = −log 1:1024).

pared with IFT by using both methods to test sera from 90 patients. Antibody titers obtained by using the two tests showed excellent correspondence (figure 1), with a correlation index (r) of .9805 ($P < .001$). In view of these almost identical results, the IPT looks promising as a simple screening assay suitable for every serological laboratory.

We have recently compared the titers of IgG and IgM antibodies to *B. burgdorferi* obtained by using IPT with those obtained by using ELISA and IFT [4].

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